

67481

24,2200

AUTHORS:

SOV/24-59-4-27/33
Andriyevskiy, Ye.A. and Mikhaylovskiy, V.N. (L'vov)

TITLE:

Influence of Temperature and External Magnetic Fields
on the Stability of Permanent Magnets Made from
Iron-nickel-aluminium Alloys

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Energetika i avtomatika, 1959, Nr 4, pp 210 - 214
(USSR)

ABSTRACT:

For most modern high-coercitivity alloys, no information
is available on the limits of linearity and reversibility
of the changes caused by temperature and variations in
the external magnetic field. Therefore, the authors of
this paper have investigated the influence of temperature
and external magnetic field on the magnetic character-
istics of permanent magnets by employing the compensation
magnetometric method, using magneto-modulation pick-ups.
The effect of the investigated magnet on the pick-up,
after the measurement of its remanent magnetisation in
the initial state, was balanced by means of an auxiliary
compensating magnet. This permitted the measurement of

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Influence of Temperature and External Magnetic Fields on the
Stability of Permanent Magnets Made from Iron-nickel-aluminium
Alloys

the changes of the remanent magnetisation ΔJ of the magnet, while the temperature or the external field was varied. The measuring equipment permitted the determination of the temperature and induction coefficients with an error not exceeding 2-4%. The composition of the investigated materials is indicated in the table on p 210. The measured samples were in the form of cylindrical rods, having dimensions 20 x 120 mm. De-magnetisation curves of these samples are shown in Figure 1. The dependence of the temperature coefficients of the magnets (of the above six alloys) on the de-magnetisation coefficient is illustrated in Figure 2; the 'solid' curves refer to the relative de-magnetisation of 10%, while the 'dashed' curves are for the 40% de-magnetisation. The de-magnetisation coefficient N was defined as $N = 4V/(2 - d/l)$, where d is the diameter of a magnet and l its length. The temperature coefficients of Figure 2 were determined relatively to the temperature of

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**Influence of Temperature and External Magnetic Fields on the
Stability of Permanent Magnets Made from Iron-nickel-aluminium
Alloys**

20 °C, which was regarded as the standard temperature; the investigated range of temperatures extended from 0 to 100 °C. The effect of the external field is illustrated in Figures 3-6. Figure 3 shows the dependence of the induction coefficient on the de-magnetisation factor N (10 and 40% de-magnetisation). The induction coefficient is defined as $\nu = \Delta J / J \Delta H_{BH}$, where J is the remanent magnetisation of the magnet, ΔJ is its reversible change during the interaction of an external field ΔH_{BH} on the magnet. (The relationships are linear but at different slopes for different materials.) If an irreversible change ΔJ_H of the remanent magnetisation is of interest, the effect can be described by the so-called irreversible induction coefficient; the magnitude of this coefficient as a function of the external longitudinal field is shown in Figure 4. It is also possible

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ANDRIYEVSKIY, Ye. A., Cand Tech Sci — (diss) "The effect of temperature and external magnetic field on the stability of the magnetic properties of permanent magnets of Fe-Ni-Al -alloys," L'vov, 1960, 22 pp (L'vov Polytechnical Institute) (KL, 33-60, 145)

S/194/61/000/006/001/077
D201/D302

AUTHORS: Andriyevskiy, Ye.A., and Blazhkevich, B.I.
TITLE: The use of magnetic modulation pick-ups for measuring the temperature coefficient of the magnetic moment of permanent magnets
PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1961, 5, abstract 6 A38 (V sb. vopr. obshch. elektropriborostr., Kiev, AN USSR, 1960, 164-174)

TEXT: A description is given of the arrangement for determining the temperature coefficient of permanent magnets. The intensity of the field produced by the investigated magnet placed in a thermostat and the increment of this field are measured by a compensation method. When measuring the increment, the original field is compensated by a reference magnet at a constant temperature. The sensing element is a magnetic modulation pick-up, placed perpendicularly to the lines of force of the earth field. The field

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S/194/61/000/006/001/077
D201/D302

The use of magnetic modulation...

measured by the pick-up is compensated by means of the d.c. current flowing in the windings of the sensing element. The electronic circuit, with a null detector at its output is used to determine the degree of compensation. The analysis of the errors introduced by the method and numerical relationships are given. The accuracy of measurement which can be achieved is 3% for the measured temperature coefficient of about $2 \times 10^{-4} \text{ 1/}^\circ\text{C}$. 4 references.
[Abstracter's note: Complete translation]

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31460
S/651/61/000/005/003/009
D209/D303

9,6130 (1121)

AUTHORS:

Ye.A. Andriyevskiy, and V.N. Mikhaylovskiy

TITLE:

Certain problems of temperature compensation of magnetometers with magneto modulation transmitters and compensating permanent magnets

SOURCE:

Akademiya nauk Ukrayins'koyi RSR. Instytut mashynoznavstva i avtomatyka, L'viv. Avtomaticheskyy kontrol' i izmeritel'naya tekhnika. No. 5, Kiev, 1961, 78 - 87

TEXT:

The authors describe two methods of magnetometer temperature compensation. One of the causes of the variation of magnetic field intensity of the permanent magnet which produces the required reference field in the magnetometer, is the ambient temperature fluctuation which affects the magnetic moment of the compensating magnet and its distance from the transmitter. The authors give an expression for the mean intensity of the magnet of a given configuration and derive expression

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S/651/61/000/005/003/009
D209/D303

Certain problems of ...

this method is not always complete and, therefore, a supplementary temperature compensation may be required. The method of calculating the permanent magnet parameters based on this principle is fully described. Another method of temperature compensation is based on thermomagnetic compensation, whereby thermomagnetic shunts are used to eliminate the temperature coefficient of the compensating magnet. In case of cylindrical magnets the shunts are in the form of rings fixed over the cylindrical magnet. In this case the expression for the temperature coefficient of the magnet with thermal shunts becomes

$$\alpha'_{inst} = \alpha'_M - 3\alpha_r - 4 \left(\frac{4r_o^2}{l_{go}^2} - 1 \right)^{-1} (\alpha_r - \alpha_l) = 0, \quad (6)$$

It also follows that in order to obtain thermal compensation the following expression must be satisfied

$$\Delta\alpha_M = \alpha'_M - \alpha_M = -\alpha'_{inst} \quad (7)$$

Card 3/4

ANDRIYEVSKIY, Ye.A.; BONDARUK, B.L.

Ferroresonant voltage stabilizer as a reference voltage source
with operating temperature from 20 to 250° C. Vop. pered.
inform. 2:159-161 '63. (MIRA 16:12)

ACCESSION NR: AT4043980

S/3106/64/000/008/0086/0089

AUTHOR: Andriyevskiy, Ye. A., Bondaruk, B. L.

TITLE: Residual effects of temperature changes in permalloy alloys

SOURCE: AN UkrSSR. Fiziko-mekhanicheskyy institut. Avtomaticheskyy kontrol' i izmeritel'naya tekhnika, no. 8, 1964, 86-89

TOPIC TAGS: permalloy, alloy magnetic property, alloy inductance, alloy coercive force, cyclic heating, thermal stress

ABSTRACT: When alloys of the permalloy type are subjected to cyclic heating, two types of change in magnetic properties may be produced, depending on the temperature and rate of cooling: reversible changes which disappear after heating is discontinued, and permanent or residual changes. In the present paper, the authors investigate the changes in saturation inductance, residual inductance and coercive force produced in alloys 79NMA, 77NMD, 34NKMP, 35NKKhSP and 37NKDP by cyclic heating and cooling to temperatures of to 400C. In each case, the alloy was kept at the selected temperature for 1 hr. and then cooled at a rate of 200-250C/hr. Measurements were made by a ballistic method. The results showed that no residual changes in magnetic properties appear at temperatures up to 400C.

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ENCLOSURE: 01

ACCESSION NR: AT4043980

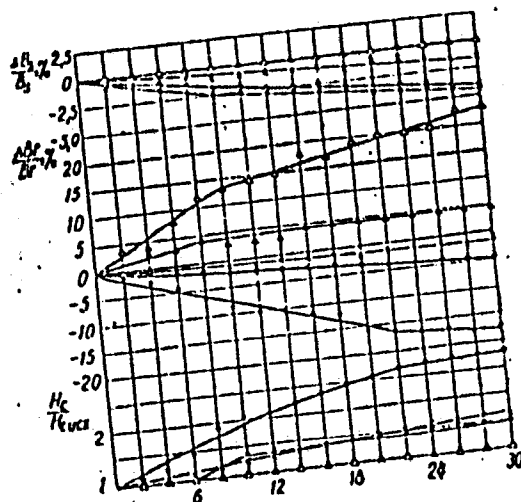


Fig. 1. Changes in saturation inductance, residual inductance and coercive force in relation to the number of 20-400-20C temperature cycles. $\Delta\Delta\Delta$ - 79NMA; $\Delta\Delta\Delta$ 77NMD; XXX - 34NKMP; 000 - 35NKKhSP; $\bullet\bullet\bullet$ - 37NKDP.

Card 3/3

ACCESSION NR: AT5014635

IR 0000-65 000 000 0189/0193
681.142.324

AUTHOR: Andriyevskiy, Ye. A.; Bondaruk, B. L.

TITLE: Influence of temperatures between -200 and +500C on the initial properties of Permalloys

SOURCE: Vsesoyuznoye soveshchaniye po magnitnym elementam avtomatiki i vychislitel'noy tekhniki, 9th, Yerevan, 1963. Magnitnyye analogovyye elementy (Magnetic analog elements); doklady soveshchaniya. Moscow, Izdat. Nauka, 1965, 189-193

TOPIC TAGS: Permalloy temperature stability, temperature induced magnetic change, Permalloy magnetic property, residual magnetism

ABSTRACT: In their earlier work, the authors neglected to investigate the residual temperature influences in Permalloys (Sb. Avtomaticheskiiy kontrol' i izmeritel'naya tekhnika, no. 7, Kiev, Izd-vo AN UkrSSR, 1963). The present study therefore deals specifically with the irreversible changes in magnetic properties of Permalloys and establishes temperature limits beyond which residual changes appear. It also establishes the dependence of these changes on the temperature and the number of cycles, and investigates possible ways for the stabilization of various alloys against the effects of

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ACCESSION NR: AT5014633

temperature cycles. Comprehensive data refer to the behavior, within the -200 to +500C temperature limits, of the Permalloys 79NMA, 77NMD, 34NKMP, 35NKKSP, 37NKDE, and 68NMP prepared by standard thermal processing in the form of toroidal samples. Orig. art. has: 6 figures. 7

ASSOCIATION: none

SUBMITTED: 28Dec64

ENCL: 00

SUB CODE: MM, EM

NO REF SOV: 001

OTHER: 001

Nickel Alloy 18

30.
Card 2/2

ANDRIYEVSKIY, Ya. I.

Apply advanced methods for the exchange of bridge timbers. Put'
1 put. khos. 6 no.9:48 '62. (MIRA 15:10)

1. Zamestitel' nachal'nika distantii puti po inzhenernym
soorusheniyam, st. Sochi, Severo-Kavkasskoy dorogi.

(Railroad bridges—Maintenance and repair)

BONISHKO, Ye.M.; ANDRIYEVSKIY, Ye.P.

Find ways of increasing labor productivity in sugar plants. Sakh.
prom. 31 no.2:19-20 F '57. (MLRA 10:4)

1. L'vovskiy sakhsveklotrest (for Bonishko)
2. Chernovitskiy sakhsveklotrest (for Anrdiyevskiy)
(Sugar industry--Production standards)

ANDRIYKO, M. dots., kand. tekhn. nauk; BRODETSKIY, V. [Brodets'kyi, V],
dots., kand. tekhn. nauk; CHERNYAVSKIY, A. [Cherniavs'kyi, A.],
dots., kand. tekhn. nauk.

Make wider use of local hardwood varieties. Sil'. bud. 9 no.9:20-21
S. '59. (MIRA 12:12)
.. (Ukraine--Hardwoods)

ANDRIYUK, L., mayor tekhnicheskoy sluzhby

The teaching machine "Kontroler." Tekh. i vooruzh. no. 4:41-43
Ap '64. (MIRA 17:9)

ANDRIYUK, M.N.

Our experience in increasing the profit-giving capacity of yeast
production. Gidroliz. i lesokhim.prom. 14 no.2:17 '61. (MIRA 14:3)

1. Lobvinskiy gidroliznyy zavod.
(Lobva—Yeast)

ANDRIYUK, Ye.I. [Andriiuk, K.I.]

Distribution of soil actinomycetes. Mikrobiol.zhur. 23 no.1:
75-80 '61, (MIRA 14:5)
(ACTINOMYCES) (SOIL MICRO-ORGANISMS)

U
ALEKSEYEV, F.K.; ANDRIYUTS, G.L.; ARSENT'YEV, A.I.; ASTAF'YEV, Yu.P.;
BEVZ, N.D.; ~~BEREZOVSKIY~~, A.I.; GENERALOV, G.S.;
DOROSHENKO, V.I.; YESHCHENKO, A.A.; ZAPARA, S.A.; KALINICHENKO, V.F.;
KARNAUSHENKO, I.K.; KIKOVKA, Ye.I.; KOBOZEV, V.N.; KUPIN, V.Ye.;
LOTOUS, V.K.; LYAKHOV, N.I.; MALYUTA, D.I.; METS, Yu.S.; OVODENKO,
B.K.; OKSANICH, I.F.; PANOV, V.A.; POVZNER, Z.B.; PODORVANOV, A.Z.;
POLISHCHUK, A.K.; POLYAKOV, V.G.; POTAPOV, A.I.; SAVITSKIY, I.I.;
SERBIN, V.I.; SERGEYEV, N.N.; SOVETOV, G.A.; STATKEVICH, A.A.;
TERESHCHENKO, A.A.; TITOV, O.S.; FEDIN, A.F.; KHOMYAKOV, N.P.;
SHEYKO, V.G.; SHEKUN, O.G.; SESTAKOV, M.M.; SHTAN'KO, V.I.

Practice of construction and exploitation of open pits of Krivoy
Rog Basin mining and ore dressing combines. Gor. zhur. no.6:
8-56 Je '63. (MIRA 16:7)
(Krivoy Rog Basin—Strip mining)

NIKONENKO, O.F., gornyy inzh.; ANDRIIUTS, G.L., gornyy inzh.;
POLISHCHUK, A.K., gornyy inzh.; VOIYNETS, M.A., gornyy inzh.

Operation of the SDG-1 bit-dressing machine. Sbor. nauch.
trud. KGRI no.15:82-86 '63. (MIRA 17:8)

L 8379-65 EWT(1)/T/EEC(b)-2 IJP(c)/AEDC(b)/ASD(a)-5/RAEM(t)

ACCESSION NR: AR4044022

S/0058/63/000/011/A026/A026

SOURCE: Ref. zh. Fizika, Abs. 11A262

AUTHOR: Staryy, I. B., Andrizhiyevskiy, G. K. B

TITLE: A crystal holder for precision bending of crystal plates 2

CITED SOURCE: Nauchn. zap. kafedr matem., fiz. i yestestvozn. Odesk. gos. ped. in-t, v. 25, no. 2, 1961, 105-107

TOPIC TAGS: crystal holder, crystal plate, precision bending, spectrometer, x ray spectrograph

TRANSLATION: The quality of x-ray spectra obtained with the aid of x-ray spectrographs depends to a great extent on the perfection of the bending of crystal plates. There is described an improved model crystal holder. The material is Dural (low coefficient of thermal expansion, weak secondary radiation). There is described the technology of preparing a Dural plate, and its dimensions. Before insertion

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ACCESSION NR: AR4044022

into the x-ray spectrometer or spectrograph the crystal is aligned optically. The final phase of the alignment of the crystal is done using x-rays.

SUB CODE: SS, OP

ENCL: 00

Card 2/2

ANDRLE, A., doktor. (Podborzhany (Chekhoslovatskaya Respublika).; PAVLIK, R.,
inzhener [translator].

Academician M.K. IUskovts's book on "Brucellosis in farm animals."
Veterinariia 34 no. 4: 87 Ap '57. (MLRA 10:4)
(Brucellosis)

ANDRLE, Alois

Plan of the network of residential centers and residential places
selected for the concentration of building in the near future. Sbor
zem 69 no.3:187-199 '64.

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000101420017-5

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000101420017-5"

L 29429-66

EWP(c)/EWP(v)/T/EWP(k)/EWP(l) IJP(c)

ACC NR: AP6006157

(A)

SOURCE CODE: CZ/0078/65/000/010/0019/0019

AUTHOR: Svoboda, Jan (Plzen); Andrlik, Vaclav (Plzen); Havel, Jaroslav (Engineer, Plzen)

ORG: None

TITLE: A method for the automatic recording of defects in materials
CZ Pat. No. PV 3200-64

SOURCE: Vynalezky, no. 10, 1965, 19

TOPIC TAGS: ultrasonic flaw detector, flaw detection

ABSTRACT: A method is described for the automatic recording of defects in materials. The defects are detected by an ultra-sound device distinguished by the feature that the defects in the material detected by the ultrasonic probe of a detectoscope act upon the recorder, which traces a topographic record in rectangular coordinates. The reflected ultrasound is converted to electrical pulses in such a way that the movement of the recorder is disturbed or interrupted and synchronized with the forward movement of the conveyer in one direction. At the same time the movement of the recording drum is mechanically synchronized with the reverse movement of the carrier in the reverse direction which is perpendicular to the first movement.

SUB CODE: 14/ SUBM DATE: 03Jun64

Card 1/1

VEJDOVSKY, R., Praha-Krc, Budejovicka 800; ANDRIOVA, M.; PROSEK, A.

Suitable concentrations of secondary antitubercular agents in culture media used in sensitivity tests for Mycobacterium tuberculosis and their clinical and laboratory correlation. Cas. lek. Cesk. 104 no.39:1069-1073 1 0 '65.

1. Plicni oddeleni dospelych Thomayerovy nemocnice v Praze (vedouci MUDr. A. Prosek) a Mikrobiologicke oddeleni Thomayerovy nemocnice v Praze (vedouci MUDr. M. Zavadova). Submitted December 1964.

ANDRLOVA, Olga; CERVINKA, Frantisek; MALEK, Prokop

Contribution to the epidemiology of staphylococcal infections at
obstetrical wards with special reference to puerperal mastitis.
Cesk. gyn. 19 no.5:306-312 Oct 54.

1. Ustav exp. a klin. chirurgie, Praha.
(MASTITIS
puerperal, epidemiol. in Czech.)

ANDROANCHE, L.

Rumania /Chemical Technology. Chemical Products
and Their Application
Water treatment. Sewage water.

H-5

Abs Jour: Referat Zhur - Khimiya, No 1, 1958, 1651

Author : Ieremia T., Manescu S., Androanche L.

Title : Rapid Method for the Detection of Coli-Forms
in Water

Orig Pub: Igiena, 1956, 5, No 3, 74-85

Abstract: First an enriching test is made on conventional
broth (incubation period of 20-24 hours at 37°).
From the test tubes which show turbidity an inoc-
ulation is made on eosin agar, with addition of
methylene blue, glucose and lactose (incubation
12-24 hours). Comparative studies of river water
for Coli-forms content, carried out by the rapid
method, have revealed the advantages of the last

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ANDROIC, M.

Yugoslav's (190)

Agriculture-Plant and Animal Industry

The resistance of the *L. menthae* disper. L. to DDT. p. 181.
SUMARSKI LIST. Vol. 75, no. 5, May 1951.

East European Accessions List, Library of Congress,
Vol. 2, no. 3, March 1953. UNCLASSIFIED.

ANDROIC, M.

Yugoslavia (130)

Agriculture-Plant and Animal Industry

Pityogenes trepanatus, a new enemy of vines of the shores
of Croatia, and Istria, p. 396. SUMARSKI LIST. Vol. 75, no. 12,
Dec. 1951.

East European Accessions List, Library of Congress,
Vol. 2, no. 3, March 1953. UNCLASSIFIED.

ANDROIC, M.

Causes which influence the development of harmful insects and the importance of knowing them in order to protect forests. p. 22.

SUMARSKI LIST, Zagreb, Vol. 79, no. 1/2, Jan./Feb. 1955.

SO: Monthly List of East European Accessions, (HEAL), LC, Vol. 4, no. 10, Oct. 1955, Uncl.

ANDROIC, M.

New aspects of biological control of injurious insects. p. 635.

SUMARSKI LIST. (Društvo sumarskih inženjera i tehničara FNR Jugoslavije)

Zagreb. Vol. 79, no. 11/12 Nov/Dec. 1955.

So. East European Accessions List Vol. 5, No. 9 September, 1956

ANDROIC, M.

ANDROIC, M. Combating the gypsy moth (*Lymantria dispar* L.) by aircraft
spraying in the Nasice District during 1956, p.313

Vol. 80, no. 9/10, Sept./Oct. 1956
BILTEN DOKUMENTACIJE ZA POLJOPRIVREDU, SUMARSTVO, DRVNU I DUVAN SKU INDUSTRIJU.
AGRICULTURE
Beograd

So: East European Accession, Vol.6, no.3, March, 1957

ANDROIC, K.

Selection of stands for fighting caterpillars by using airplanes, and the profitableness of this method. p. 35.

NERODINA SUDAR. (Drustvo sumarskih inženjera i tehnicara Bosna i Hercegovina-Sarajevo; Yugoslavia. Vol. 12, no. 1/3, Jan./Mar. 1958.

Monthly list of East European Accessions (EEA1) 10, Vol. 1, no. 8, Aug. 1959.

Uncl.

ANDROIC, S.

The incidence of rheumatic diseases in an industrial plant. Arh. hig.
rada 13 no.3:195-206 '62.

1. Zavod za reumatske bolesti "Dr Dora Filipovic", Zagreb.
(RHEUMATISM) (INDUSTRIAL MEDICINE)

YUGOSLAVIA

S. ANDROIC, Institute for Rheumatic Diseases (Zavod za reumatske bolesti)
"Dr Dora Filipovic", Zagreb.

"Rheumatic Diseases in an Industrial Establishment."

Zagreb, Arhiv za Higijenu Rada i Toksikologiju, Vol 13, No 3, 1962;
pp 195-206.

Abstract [English summary modified]: Detailed clinical ergonomic and environmental (heat & humidity at working place etc.) of the 300 workers self-referred because of rheumatic syndromes to employee clinic in a 6000-employee power plant combine during 6 months. 162 had lower back pain, 50 arthralgia and myalgia, 42 spondyloses and arthroses; 108 were in the 4th and 90 in the 3rd decade of life. There was a clear correlation of symptom severity with degree of exertion and environmental stress at work. Preventive and corrective measures are outlined. Seven tables, 7 Yugoslav and 12 Western references.

1/1

SAVULESCU, V., dr.; ANDRONACHE, I., dr.; TEODORESCU, P., prof.; ANGELESCU, H.,
dr.

Considerations on the factors intervening in determining recurrence
of peptic ulcer. I. The study of the exogenous factors. Med. intern.
14 no.2:175-185 F '62.

1. Lucrare efectuată în Clinica medicală, Spitalul "Bernat Andrei",
I.M.F., București (director: prof. P. Teodorescu).
(PEPTIC ULCER)

TEODORESCU, P., prof.; NICOLAESCU, V., dr.; ANGHEL, E., dr.; ANDRONACHE, I., dr.;
GEORGESCU, M., dr.

Comparative study of the morbidity of cardiovascular diseases in the
Clinica medicala "Bernat Andrei" and in several population groups.

Med. intern. 14 no.4:549-554 My '62.

(CARDIOVASCULAR DISEASES) (MORBIDITY)

TEORDORESCU, P., prof.; TEODOREANU, T., dr.; SAVULESCU, V., dr.; ANDRONACHE, I.,
dr.; CIOACA, F., dr.

The clinical study and methodological aspects of the sequelae of
epidemic hepatitis in a community. Med. intern. 15 no.3:287-293
Mr '63.

1. Lucrare efectuata in Clinica medicala a Spitalului "Bernat Andrei"
(director: prof. P. Teodorescu).
(HEPATITIS, INFECTIOUS) (DIAGNOSIS)

ROMANIA

ANDRONACHE, I., MD.

Medical Clinic, "Bernat Andrei" Hospital (Clinica Medicala,
"Spitalul "Bernat Andrei"), Bucharest; (Director:
Professor P. Teodorescu)

Bucharest, Viata Medicala, No 7, 1 Apr 63, pp 473-476.

"Tetany Secondary to Duodenitis with Lambliasis."

(1)

TEODORESCU, P., prof.; SAVULESCU, V., dr.; ANDRONACHE, I., dr.

Pharmacodynamic tests in the diagnosis of ulcerous disease.
Value of some tests to provoke ulcer pains by vascular
overstress. Med. intern. 15 no.6:653-658 Je '63.

1. Lucrare efectuata in Clinica medicala a Spitalului "Bernat
Andrei", Bucuresti.

(PEPTIC ULCER) (DIAGNOSIS)
(CARDIOVASCULAR SYSTEM) (PHARMACOLOGY)
(EPINEPHRINE) (EPHEDRINE) (INSULIN)

TEODORESCU, P., prof.; SAVULESCU, V., dr.; ANDRONACHE, I., dr.; STEFAN, I., dr.;
GANCEVICI, A., dr.; TINCU, S., chem.; STANCESCU, Smaranda, dr.

Adrenocortical physiopathological correlations in the pre-ulcerous
stage of peptic ulcer. Med. intern. (Bucur.) 17 no.9:1069-1076 S '65.

1. Lucrare efectuata in clinicile medicale de la Spitalul Raionului
"T. Vladimirescu" si de la Spitalul "Brincovenesc", Institutul medico-
farmaceutic, Bucuresti.

ANDROIU, C.; VASILESCU, T.; MILICESCU, St.; ANDROIU, C.C.

The cervical rib syndrome. Rumanian med. rev. 19 no.2:57-64
Ap-Je'65.

TEODORESCU, P., prof.; SAVULESCU, V., dr.; ANDRONACHE, I., dr.

Clinical aspects of the pre-ulcerous phase of ulcerous disease.
Stages of the evolution of peptic ulcer. Med. intern. (Bucur.)
16 no.12:1497-1504 D '64

1. Lucrare efectuata in Clinica medicala a Spitalului unificat de
adulti al Raionului Tudor Vladimirescu, Institutul medico-far-
maceutic, Bucuresti.

IEREMIA, T.; MANESCU, S.A.; ANDRONACHE, I.

A rapid method for ascertaining the presence of coliform bacteria
in sources of drinking water supply. Rumanian M. Rev. 1 no.1:37-38
Jan-May 57.

(WATER SUPPLY, microbiol.
E. coli, detection)
(ESCHERICHIA COLI
in water supply, detection)

TEODORESCU, P., prof.; SAVULESCU, V., dr.; ANDRONACHE, L., dr.

Pharmacodynamic tests in the diagnosis of ulcerous disease.

I. Value of some diagnostic tests to induce ulcerous pains by motor and secretory functional overload. Med. intern. 15 no.10:1159-1166 '63.

1. Lucrare efectuata in Clinica medicala a spitalului "Bernat Andrei", Bucuresti.

(PEPTIC ULCER) (DIAGNOSIS)
(HYDROCHLORIC ACID) (HISTAMINE)
(INSULIN)

GARKOVIK, N.L.; BOGATSKIY, A.V.; ANDRONATI, S.A.

Synthesis and stereoisomerism of
2-methyl-5-isopropyl-5- β -isopropoxyethyl-1,3-dioxane. Zhur. VKHO
10 no.2:231 '67. (MIRA 18:6)

1. Odesskiy gosudarstvennyy universitet imeni Mechnikova.

BOGATSKIY, A.V.; ANDRONATI, S.A.; GARKOVIK, N.L.

Synthesis and some chemical transformations of ethyl- α -
isobutoxyethylmalonic ester. Ukr. khim. zhur. 31 no. 11:
1186-1188 '65 (MIRA 19:1)

1. Odesskiy gosudarstvennyy universitet imeni Mechnikova.

REPCIUC, E.; ANDRONESCU, A.

Appearance of the first blood vessels inside the neural tube of chickens and various mammals. Bul.stiint., sect.med. 6 no.4:1023-1042 Oct-Dec '54.

(CENTRAL NERVOUS SYSTEM, embryology

neural tube, appearance of first blood vessels, in chick and various mammals)

(BLOOD VESSELS

appearance inside neural tube of chicken & various mammal embryos)

ANDRONESCU, A.

Chalcographic study of complex ores from the Tibles deposits, the neovulcanic region Baia-Mare. p. 115.

REVISTA MINELOR. (Ministerul Minelor, Ministerul Industriei Petrolului si Chimiei, Directia Exploatarilor Miniere si Asociatia Stiintifica a Inginerilor si Tehnicienilor din Romina) Bucuresti, Rumania. Vol. 10, no. 3, March 1959.

Monthly List of East European Accessions (EEAI) IC, Vol. 8, no. 7, July 1959

Uncl.

SUPERCEANU, C., ing.; BORDEA, R., geolog.; ANDRONESCU, A.

New appearances of scheelite in the complex mineralization of the
massif of Tibles—Magura Neagra. Rev min 12 no.11:507-510 N '61.

(Romania—Scheelite)

ANDRONESCU, A.; BADESCU, I.; DUMA, N.

Contributions to the knowledge of the Ilba Handal deposit;
study of processes relating to vein mineralizing and weathering
of rocks. Rev min 13 no.9:393-404 S '62.

SOCOLESCU, M.; ANDRONESCU, A.; DUMA, N.

New mineralogical observations on the polymetal mineralizing of the Handalu Ilbei deposit. Rev min 13 no.10:444-446 0 '62.

ANDRONESCU, A.

On the distribution mode of germanium in different ores of Rumania.
Rev min 13 no.11:498-501 N '62.

REPCIUC, E.; ANDRONESCU, A.

On the torsion of the intestine and the mesentery. Pts.1-2.
Rev Roum embryol 1 no.2:115-138 '64.

1. Second Chair of Anatomy, Faculty of Medicine, Bucharest.

FIRICA, Th., prof.; MUNTEANU, V., dr.; TUDOSE, N., dr.; ANDRONESCU, C., dr.;
ALUNEANU, Ileana, dr.

Emergency surgery in digestive hemorrhages caused by rupture of
esophageal or gastric varices. Med. intern. 13 no.11:1541-1548 N '61.

(HEMORRHAGE, GASTROINTESTINAL surgery)
(ESOPHAGEAL VARICES complications)

L 41177-66 T JK

ACC NR: AP6030836

SOURCE CODE: RU/0023/66/011/001/0031/0039

AUTHOR: Rusu, V. (Doctor); Andronesu, C.--Andronesku, K. (Doctor); Borsai, L.--
Borshay, L. (Doctor); Marion, M. (Doctor); Baron, O. (Doctor)

ORG: "Dr. I. Cantacuzino" Institute of Microbiology, Parasitology and Epidemiology²⁴
(Institutul de microbiologie, parazitologie si epidemiologie "Dr. I. Cantacuzino")^B

TITLE: Considerations on the etiological diagnosis of listerian meningitis [This
paper was presented at Scientific Session "100th Birthday of Professor I. Cantacuzino"
held in November 1963.]

SOURCE: Microbiologia, parazitologia si epidemiologia, v. 11, no. 1, 1966, 31-39

TOPIC TAGS: diagnostic medicine, bacteriology, infective disease

ABSTRACT:

In view of the difficulties encountered in the first case in Rumania of an identified human strain of Listeria monocytogenes, the authors discuss: observations relating to each stage of the diagnosis, with emphasis on unusual aspects; the establishment of a differential diagnosis and avoidance of confusion with other germs such as corinebacteria, enterococci, etc.; a diagnostic scheme for the diagnosis of human listeriosis, especially neurolisteriosis, adaptable for use in any bacteriological laboratory. The authors thank Professor N. Stamatin for the supply of corinebacteria and erisipelotrix provided. The authors also thank Doctor Al. Pop. for assistance with the diagnosis. Orig. art. has: 1 table. /JPRS: 35,811/

SUB CODE: 06 / SUBM DATE: 02Feb65 / ORIG REF: 005 / OTH REF: 008
Card 1/1 NS

Distr: 4E2a/4E2b 621.34
6341. SOME ASPECTS OF POWER SUPPLY AT THE ROMAN
ROLLING MILL. A. Sente, V. Alda and L. Andronescu.
Energetica (Bucarest), Vol. 3, No. 11, 545-55 (1957).
In Romanian.

After a brief description of the milling process the power
supplies, which are based on mercury-arc rectifiers for the main
drives and motor-generator sets for the 7 rolling-mill motors are
described. The automatic regulating system for the 24 m diameter
rotary hearth furnaces is also discussed.

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A.1

pg 1

RUMANIA

NASTU, C., Dr, Maj, and ANDRONESCU, Gh., Eng, Maj [affiliation not given]

"Some Observations on the Efficiency and Necessity of Protective Nutrition for Personnel Working with Special (Oxidating) Fuels."

Bucharest, Revista Sanitara Militara, Vol 62, No 5, Sep-Oct 66, pp 901-907.

Abstract: A report on an experimental study involving two lots of three dogs each to determine whether a protective diet is effective in protecting animals subject to intoxication with oxidating substances. While the small number of animals involved means that the results cannot be considered definitive, the authors did find a protective diet effective and suggest tests to determine whether it will be equally effective in protecting military personnel.

Manuscript submitted 11 April 1966.

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R/009/61/000/002/002/003
D272/D305

AUTHORS: Andronesu, Longin, and Manolescu, Radu, Engineers

TITLE: New achievements in rolling mill automation

PERIODICAL: Metalurgia si constructia de masini, no. 2, 1961, 135-141

TEXT: The problem of increased production by automation and control is considered with special attention to the achievements in rolling mill automation. First the actual state of electrical actuation of rolling mill mechanisms is discussed, indicating the stages of development in their automation control by a human operator, closed circuit control, memorization and production data analysis, and finally computation (programming), reviewing the characteristics of the individual stages. The control of these electrical driving elements is best performed with direct current motors, fed by grid-controlled mercury vapor rectifiers. The "electrical driving device" comprising the grid-controlled mercury rectifier, the electric motor, and the auxiliary apparatus, is examined, analyzing

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D272/D305

New achievements in ...

its general functions: Starting motors without rheostats, controlling motor speeds by voltage variation in the induced circuit, by excitation control, or by combined control, inverting the motor rotation (in reversible rolling mills) by changing the polarity in the main or excitation circuits, electric braking of motors without rheostats, and high precision of control (due to reduced inertia). This general discussion is followed by consideration of the problem of loop controllers - the capacitative and the mechanical palpation loop controllers, whose operation is described in detail. Further devices for the continuous measurement of geometric dimensions of rolled products developed in the USSR are described, considering (a) automatic devices for non-contact measurement of the product thicknesses based on radioactive isotopes and on X-rays, (b) automatic devices for diameter measurement, and (c) automatic devices for strip width measurement. In category (a) are mentioned devices ITU-495 and ITS-496 (for 0.03 - 1 mm, at an accuracy of $\pm 1.5\%$, the measuring zone width being 160 and 500 mm respectively, the rate of the indicator shift on the scale being 150 micron/sec,

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New achievements in ...

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D272/D305

irradiation sources of ^{144}Ce or ^{90}Sr of 20 mCu being employed) and IT-295 (for 0.003 - 0.15 mm, at an accuracy of $\pm 3\%$ for thicknesses over 15 microns, and - 0.5 microns for smaller thicknesses, the irradiation sources being ^{204}Tl of 20 mCu). A device for thicknesses up to 3 mm, employing ^{170}Tl as the source is being studied. The radiation is measured with a scintillation counter of high effectivity and reduced grid with respect to the ionization chamber. Two variants employing X-rays were developed. In one variant the radiation emitted from one X-ray tube reaches two receivers, after penetrating a standard and the rolled strip respectively, the signals received being amplified, detected, and passed through an amplitude discriminator, from which a signal, equal to the difference between the entry signal, emerges, is amplified, and actuates a reversible motor, whose shaft is coupled to a variable thickness screen and a rheostat brush. Some devices were mentioned - one operating in the range 1.5 - 4 mm (± 0.03 mm error) and 3 - 4 mm (± 0.06 mm error), and a second operating in the range 1.3 - 5 mm (± 0.3 mm error). In the second variant two X-ray tubes, connected in antiphase, and emitting each for one half period of the feed si-

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New achievements in ...

R/009/61/000/002/002/003
D272/D305

nusoidal voltage, are employed, the flux from the first tube penetrating the strip, the flux from the compensating tube passing through a compensating screen, both fluxes being received by the same receiver, the error being amplified and actuating a servomotor similar to that in the first variant. Several devices in this category were mentioned, one operating in the range 0.5 - 3 mm (+ 0.5% error) at 30 mm distance of the measuring head from the strip and a second one operating in the ranges 1.2 - 5 and 2.4 - 10 mm (+ 0.5% error) at 150 - 200 mm distance of the measuring head from the strip. In category (b) a device based on an optical system is described, in which the shade of the diameter is measured on a screen by means of a rotating disc with an Archimedean spiral slit - the duration of the photoelement shading being proportional to the shade dimensions, obtaining an accuracy of 1 - 1.5% in the range 4.5 - 8.5 mm. A device measuring perpendicular diameters (ovality) was also constructed. In category (c) a device incorporating two photoelectric measuring heads is described. The deviation of the strip width from the normal width is equal to the ratio between the sum of the edges "seen" by the heads and the width d of the visibi-

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New achievements in ...

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D272/D305

lity field of one head at the level of the controlled strip surface. Tolerances of 0.015 mm were achieved (at 0.3 mm thickness). Finally the future introduction of computers in the automation circuit of rolling mills is discussed. There are 10 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc.

Card 5/5

DIMITRIU, C.C., prof.; BULIGESCU, L., dr.; ARESTEANU, L., dr.; SUCIU, Dan,
dr.; TOMESCU, V., dr.; MARINESCU, M.dr.; ANDRONESCU, M., dr.;
SOLOMON, Sela, dr.

The importance of early diagnosis of postviral chronic hepatitis.
Med. inter., Bucur 13 no.5:673-678 My '61.

1. Lucrare efectuata in Clinica medicala a Spitalului "C.Davilla",
I.M.F., Bucuresti.

(HEPATITIS, INFECTIOUS complications)

(LIVER CIRRHOSIS prev. & control)

(HEPATITIS diagnosis)

MARINESCU, G.; ANDRONESCU, M.

Nephritis of viral etiology. Stud. cercet. inframicrobiol. 13 no.1:
111-122 '62.

(NEPHRITIS virology) (VIRUS DISEASES)

ROMANIA

ANDRONESCU, H., MD; ARESTEANU, L., MD; BULIGESCU, I., MD; COLITA, D., MD;
DEBITIAN, H., MD; IONESCU, Genevieve, MD; IONIȚA, C., MD; MARINESCU,
H., MD; MOLDOVAN, T., MD; PAUNESCU, C., Lecturer; SEROPIAN, F., MD;
STICLET, C., MD; SUCIU, D., MD; VASILESCU, G., MD.

Medical Clinic of the "Carol Davila" "ospital" (Clinica medicala
a Spitalului "Carol Davila") - (for all)

Bucharest, Vista Medicala, No 3, 1 Feb 64, pp 167-181

"Data Concerning Dispensary Supervision and Treatment of Epidemic
Hepatitis in a Section of the town of Bucharest."

(14)

MARINESCU, Gh.; ANDRONESCU, M.

Rickettsial and pararickettsial nephropathies. Stud. cercet. in-
framicrobiol. 15 no.4:377-389 '64

GIORAPCIU, S., conf.; ANDRONESCU, M., dr.; COSTESCU, Marilena, dr.;
IONESCU-TIRA, Genoveva, dr.

Considerations on a case of diffuse cancerous osteosis. Med.
intern. (Bucur) 17 no.2:223-228 F'65.

1. Lucrare efectuata in Clinica medicala a Spitalului "Carol
Davilla", Institutul medico-farmaceutic, Bucuresti.

ANDRONESCU, P.

Observations on the book Calculul operational si aplicatiile lui in electronica (Operational Calculation and Its Application in Electronics).

p. 90

Vol. 4, no. 2, Feb. 1956

ELECTROTEHNICA

Bucuresti

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 12
December 1956

ANDRONTESCU, P.

System of measures as component part of the system of quantities.

P. 281 (Academia, Republicii Populare Romine. Institutul de Energetica. Studii Si Cercetari de Energetica. Vol. 6, no. 3, July/Sept. 1956, Bucuresti, Rumania)

Monthly Index of East European Accessions (EFAI) LC. Vol.7, no. 2,
February 1958

ANDRONESCU, P.; ANTONIU, L.

Notes on the article "Power Calculation in an Alternating Current Using Complex Quantities," p.85.

(ELECTROTEHNICA. Vol. 5, No. 3, Mar. 1957, Rumania)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957
Uncl.

ANDRONESCU, P.

"Application of complex operators to the study of polyphase-electric circuits; also, I. Antoniu's answer."

p. 119 (Electrotehnica) Vol. 5, no. 4, Apr. 1957
Bucharest, Rumania

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

ANDRONESCU, Pl.

Phenomenological aspect of utilization of Ge-n and Ge-p semi-conductors, used in electrotechnics. Bul St si Tehn Tim 8 no.1:139-147 Ja-Je '63.

ANDRONESCU, S.

ANDRONESCU, S. Industrial methods of handicraft procedure? p. 2.
CONSTRUCTORUL. Bucuresti, Rumania. Vol. 7, no. 296. Sept. 1955

SOURCE: East European Accessions List, (EEAL) LC, Vol. 5, No. 6, June 1956

ANDRONESCU, S.

New wine in new vats. p. 2

Vol. 7, no. 300, Oct. 1955
CONSTRUCTORUL
Bucresti

Source: East European Accessions List (EEAL), LC, Vol, 5, No. 2
Feb. 1956

BULGARIA/Chemical Technology. Chemical Products and H
Their Uses. Part III. Food Industry.

Abs Jour : Ref Zhur-Khiniya, No 15, 1958, 51965

Author : Andronov, Y.

Inst : -

Title : Production of Canned Fish Products in the
Slavyanka Plant.

Orig Pub : Ribno stopanstvo, 1957, No 2, 24-26

Abstract : A short description of the recipes and of
the production methods of various canned
products, such as mackerel, flounder, carp,
etc., was given. The amount of fish per can
was 70-75 percent, the amount of sauce was
25-30 percent. Fish was salted in a broth
at 22-24°C [Boiling] (20-30 min). All ty-

Card : 1/2

ZAMFIR, C., dr.; medic emerit; CIOBA, Gh., dr.; EFANOV, A., dr.; ANDRONIC, C., dr.;
MACARIE, O., farm.; CCHICESCU, O., farm.

On some clinico-biological aspects of atherosclerosis in persons
under 40 years of age. Med. intern. 16 no.3:291-299 Mr'64

1. Lucrare efectuata in Sectia I de boli interne si in Labora-
torul de chimie biologica din Spitalul militar central,
Bucuresti.

L 33039-66 T WE

ACC NR: AP60214216

SOURCE CODE: RU/0007/65/016/009/0482/0487

AUTHOR: Tunescu, R. C.—Tsunesku, R.; Andronic, A.—Andronik, A.

ORG: none

TITLE: Increasing the processing capacity of a vacuum-distillation plant operating according to a distillation-refining-redistillation scheme

SOURCE: Petrol si gaze, v. 16, no. 9, 1965, 482-487

TOPIC TAGS: vacuum distillation, petroleum refining

ABSTRACT: The authors describe a technological scheme they introduced to double the processing capacity of a vacuum distillation plant for asphalt-base fuel oil. The scheme allows the simultaneous distillation of the fuel and of the completely refined distillate, and according to economic calculations also results in a sizable cost reduction. Orig. art. has: 10 figures, 7 formulas and 2 tables. [Based on authors' Eng. abstract] [JPRS]

SUB CODE: 11, 07 / SUBM DATE: none / ORIG REF: 001 / OTH REF: 005

Card 1/1

UDC: 665.523.012.42.001.7

to articular rheumatism in patients under 40 years and to atherosclerosis in older ones.

Includes 15 figures and 19 references, of which 14 Rum-anian, 4 French and one English-language. -- Manuscript submitted 24 March 1966.

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000101420017-5"

ANDRONIC, I.

H-1.7

RUMANIA / Chemical Technology, Chemical Products and Their Application, Part 3. -
Drugs, Vitamins, Antibiotics.

Abs Jour : Ref Zhur - Khim., No 14, 1958, No 47777

Author : M. Sternberg, B. Benis, A. Solomon, Renee Ghimpu, Iuliana Comu, A. Miss,
I Andronic, Ciocanelea, A. Prialnic, Alice Ilia, Hermia Schreiber.

Title : Dicillin (Dipenicillinate of N,N'-Dibenzylethylenediamine).

Orig Pub : Rev. chin., 1957, 8, No 5, 339 - 341

Abstract : Methods of N, N'-dibenzylethylenediamine dipenicillinate preparation of
crystalline penicillin G or various intermediate phases of its extrac-
tion or purification are described. Hints concerning the preparation of
some Galenic forms (tablets and injection suspensions) and the methods of
chemical and microbiological analyses are presented.

RUMANIA/Chemical Technology - Chemical Products and Their
Applications - Drugs, Vitamins, Antibiotics.

H.

Abs Jour : Ref Zhur - Khimiya, No 11, 1958, 37202

Author : Miss, A., Greceanu, I., Andronic, I., Ilian A,
Schreiber, H.

Inst :

Title : New Type of Procaine-Penicillin for Injections.

Orig Pub : Rev Chim, 1957, 8, No 5, 343-344

Abstract : A new type of procaine-penicillin for injections was
obtained by means of introduction of procaine solution
into a flask filled with the ready-for-use penicillin.
Control methods for determination of toxicity and steri-
lity have been established.

Card 1/1

ANDRONIC, V., ing.

Dyeing the cotton with insoluble azoic dyes formed on the fiber. Ind text Rum 16 no.1:36-39 Ja '65.

1. "Arta Textila" Enterprise, Timisoara.

RUMANIA / Cultivated Plants. Potatoes. Vegetables.
Melons.

M-3

Abs Jour: Ref Zhur-Biol., No 6, 1958, 25043

Author : Andronicescu, D.

Inst : Not given

Title : Districting Vegetable Crops

Orig Pub: Gradina, via si livada, 1957, 6, No 5, 1-10 (Ruman-
ian)

Abstract: No abstract.

Card 1/1

ANDRONIK, F.

Way to the economical use of nonferrous metals, p.6. (Technicke Noviny, Praha, Vol. 2, No. 24, Dec. 1954)

SO: Monthly list of East European Accessions (EEAL), LC Vol 4, No. 6, June 1955, Uncl

SOV/137-58-9-19747

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 233 (USSR)

AUTHORS: Andronik, I.K., Kot, M.V.

TITLE: ~~Electrical Conductivity and Thermo-emf of the CdSb Alloy With~~
Admixtures of Foreign Atoms (Elektroprovodnost' i termo-
e.d.s. soyedineniya CdSb s primesyami chuzherodnykh atomov)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 147-152

ABSTRACT: A study of the temperature relationship of the conductivity and the thermo-emf α of a CdSb compound alloyed with Zn, Al, and Bi in the 105-473°K temperature range. All specimens had hole-type conductivity. Upon the introduction of admixtures of Zn and Al (up to 5%) into the CdSb the activation energy in the region of the intrinsic conductivity increases. The formation of solutions of the initial compound with the emerging ZnSb and AlSb compounds is assumed. In the presence of ~1% of Zn in the low-temperature range a degeneration of the state of the holes is observed, and a further increase in the concentration of Zn probably brings about the degeneration of the impurity levels to a narrow impurity zone. In the presence of 5% Zn in the low-temperature region, metallic conductivity is observed.

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SOV/137-58-9-19747

Electrical Conductivity and Thermo-emf of the CdSb Alloy (cont.)

In compounds with admixtures of Al and Bi a semiconductive behavior of $\sigma(T)$ is observed throughout the entire temperature range investigated. An attempt is made to evaluate the activation energies ΔE_1 of the admixtures from $\sigma(T)$. In the presence of 0.1 atom-% Al or Bi, the $\Delta E_1 = 0.05$ ev and the compound possesses maximum values of α equal to 484 and 333 $\mu\text{V}/^\circ\text{C}$, respectively. The band gap is $\Delta E = 0.48$ ev in the presence of 0.1 atom-% Al and increases to 0.56 ev with ~ 5 atom-% Al; the behavior of Zn is similar. An increase in the concentration of Bi to 2.5 atom-% has practically no effect on the band gap, and upon the introduction of 5 atom-% Bi a mechanical mixture forms of Bi with the CdSb alloy. Admixtures of Zn and Bi sharply decrease the magnitude of α upon the increase of their concentration over 1 atom-% and 0.1 atom-%, respectively.

L.M.

1. Antimony-cadmium alloys--Conductivity 2. Antimony cadmium alloys--Temperature factors 3. Antimony-cadmium alloys--Electrical properties

Card 2/2

SOV/137-58-9-19746

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 232 (USSR)

AUTHORS: Kot, M.V., Andronik, I.K.

TITLE: Electrical Conductivity of CdSb Single Crystals (Elektroprovodnost' monokristallov CdSb)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 209-214

ABSTRACT: A method for growing CdSb single crystals and the results of an investigation of the relationship between temperature and conductivity σ in various crystallographic directions are presented. Spectrographically pure Cd and Sb, which were melted together in pyrex ampules evacuated to a pressure of 10^{-3} mm Hg, served as the initial products. In the presence of a capillary or of an orienting priming tube in the lower part of the ampule and at rates of growth of 9-11 mm/hour, single crystals of the pure CdSb alloy and also of CdSb with an admixture of Pb were obtained. Three series of specimens were prepared, namely, 1) along the first plane of cleavage but perpendicularly to the second; 2) perpendicularly to the first plane of the cleavage; and 3) along both planes of cleavage. At 220°C and higher the mobility of the atoms of the alloy is great and a

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Electrical Conductivity of CdSb Single Crystals

SOV/137-58-9-19746

disordering of the lattice takes place; therefore, measurements were performed at temperatures $< 200^{\circ}$. A metallic form of σ was observed in the low-temperature range indicating the presence of degeneration of the electron gas. The calculated magnitude of the energy of activation of electrons from the basic zone ΔE_1 for this range is equal to $6 \cdot 10^{-3}$ ev. In the high-temperature range ΔE has a definite relationship with the periods of the lattice, which indicates an anisotropy of the properties of CdSb single crystals. In specimens with an admixture of Pb a change of the type of conductivity from the hole-type (in pure CdSb single crystals) to the electron-type is observed, as well as an improvement in the rectifying properties of the point contact.

L.M.

1. Antimony-cadmium crystals--Growth
2. Antimony-cadmium crystals--Electrical properties
3. Antimony-cadmium crystals--Temperature factors
4. Antimony-cadmium crystals--Test results

Card 2/2

SOV/137-58-9-19748

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 233 (USSR)

AUTHOR: Andronik, I.K.

TITLE: Some Electrical Properties of CdSb Single Crystals (Nekotoryye elektricheskiye svoystva monokristallov CdSb)

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1957, Vol 29, pp 215-219

ABSTRACT: Curves are adduced for the relationship of the differential thermo-emf α and the Hall constant R to the temperature for three series of specimens in three mutually perpendicular directions (see RZhMet, 1958, Nr 9, abstract 19747). Upon heating to 200°C α decreases in the low-temperature range, and only after the third heating will its values give reproducible results. These variations disappear and α acquires its initial values when measured several weeks later. It is assumed that this behavior indicates a noticeable mobility of the atoms at $> 200^\circ$. For each series of specimens there is a limit in the high-temperature range to which all the values of α converge. The temperature relationship of $\alpha(T)$ of specimens prepared from the same single crystal indicates an anisotropy of the properties in the three selected directions. The

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Some Electrical Properties of CdSb Single Crystals

admixture of $10^{-4}\%$ Pb changes the character of the relationship of $\alpha(T)$; in the vicinity of 0° α becomes negative. On the basis of the above the conclusion is drawn that the dissolved Pb produces donor conditions situated close to the bottom of the zone of conductivity. R in the high-temperature zone tends towards zero in all the specimens. At room temperature the average values for α are $\sim 400-500 \mu\text{V}/\text{degree C}$, the concentration of the carriers being $(2-7) \cdot 10^{16} \text{ cm}^{-3}$, the mobility being $218-630 \text{ cm}^2/\text{sec}$.

L.M.

1. Single crystals--Electrical properties
2. Single crystals--Temperature factors
3. Antimony-cadmium crystals--Analysis

Card 2/2

81628

S/181/60/002/06/16/050

B122/B063

24.7700

AUTHORS:

Andronik, I. K., Kot, M. V.

TITLE:

Anisotropy of the Electrical Properties of Cadmium Antimonide
Single Crystals ²¹

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1128 - 1133

TEXT: The article under review describes the preparation of cadmium antimonide single crystals which has hitherto been very difficult. The electrical properties of this single crystal were studied in three crystallographical directions perpendicular to one another. The orientation of these axes had been determined by N. A. Goryunova, Doctor of Chemical Sciences, at Leningradskiy fiziko-tekhnicheskii institut AN SSSR (Leningrad Institute of Physics and Technology AS USSR) to whom the authors express their gratitude. The single crystals were bred by the variation method and by zonal recrystallization at a pressure of 10^{-3} torr. The single crystals bred were repeatedly recrystallized in a hydrogen flow at atmospheric pressure up to an impurity degree of $10^{14}/\text{cm}^3$. Results obtained from the

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Anisotropy of the Electrical Properties of
Cadmium Antimonide Single Crystals

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analysis of two samples (twofold and threefold recrystallization) are supplied. The temperature range was between the temperature of liquid hydrogen and 150°C. The electrical conductivity was determined by the compensation method with potentiometer ППТБ-1 (PPTV-1). The CdSb crystal belongs to the symmetry class mmm and has three components of the conductivity tensor, which are independent of one another and which correspond to the three axial directions. At temperatures of over 20°C, the conductivity coefficient had a positive sign. At these temperatures, conductivity corresponded to that of natural semiconductors. The activation energy of conductivity amounted in all samples to 0.56 - 0.57 eV, regardless of the temperature dependence of the coefficient before the exponential. The authors further studied the temperature dependence of the Hall effect and of the conductivity in the magnetic field at temperatures of liquid oxygen. Also the components R_{ijk} of the Hall effect in the various axial directions were found to assume different values. They have positive signs, and remain constant at temperatures around 250°K, and at 340 - 370°K they all tend toward zero. A dependence was found to exist between the R_{ijk} and the

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Anisotropy of the Electrical Properties of
Cadmium Antimonide Single Crystals

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B122/B063

carrier concentration, wherefrom the hole concentration was determined for the single crystal by approximation. From the values obtained for the hole concentration, the following values were found for the mobility of the holes referred to the conductivity for both samples in the given axial directions: $\mu_{11}=730$, $\mu_{22}=1360$, $\mu_{33}=650$; and $\mu_{11}=980$, $\mu_{22}=1980$, $\mu_{33}=890$ $\text{cm}^2/\text{v}.\text{sec}$; the values calculated without considering anisotropy are in approximate agreement with the values obtained from the investigations. The authors further measured the temperature dependence of the thermo-emf at a temperature gradient of 15°C by the compensation method. The signs of the thermo-emf correspond to the p-type conductivity. The crystals with high hole concentration were found to possess a lower anisotropy, this being the same for high and low temperatures. On the transition of impurity conductivity to intrinsic conductivity, anisotropy has no definite value. It has a minimum value with intrinsic conductivity and is equally large for all of the three axial directions. It was further established that the temperature dependence of p- and n-type conductivity is the same. CdSb has a forbidden zone width of ~ 0.57 ev. Finally, the authors thank Professor D. N. Nasledov for interest displayed. There are 5 figures and 9 references.

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ANDRONIK, I. K.

Cand Phys-Math Sci - (diss) "Electrical properties of monocrystals of cadmium antimonate." Leningrad, 1961. 9 pp; (Leningrad State Pedagogical Inst imeni A. I. Gertsen); 150 copies; price not given; (KL, 7-61 sup, 217)

94.7700(1043, 1160, 1164)

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E036/2162

AUTHORS: Andronik, L.K., and Kot, M.V.

TITLE: Electrical properties of single crystals of cadmium antimonide

SOURCE: Soveshchaniye po poluprovodnikovym materialam 4th
Voprosy metallurgii i fiziki poluprovodnikov polu-
provodnikovye soyedineniya i tverdye splavy. Izdat-
soveshchaniya. Moscow, Izdatvo AN SSSR, 1961.
Akademiya nauk SSSR. Institut metallurgii imeni
A.A. Baykova. Fiziko-tekhnicheskii institut. 76-80

TEXT: Single crystal CdSb has been little studied, but
Russian workers have established that its electrical properties
are isotropic. In this article the electrical properties are
reported for crystals in a single crystallographic direction in
the temperature range 2.4 to 4.23 °K. Other data reported are the
log σ (where σ is the conductivity) I/T curves and thermo-e.m.f.
T curves. The crystals were made by the Bridgman technique,
followed by two passages of a zone during zone refining in hydrogen.
Uniform conductivity over some 9 cm of the crystal was obtained.

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$6 \times 10^{15} \text{ cm}^{-3}$. At temperatures above absolute zero, conduction occurs in the valence and impurity bands. No conduction occurs in the conduction band until room temperature and above. Calculation of carrier concentration and mobility can only be approximate as the anisotropy factors for the effective mass are unknown. On this basis the impurity band mobility is $0.75 \text{ cm}^2/\text{V sec}$ at 2.4°K . From the maxima of the Hall constant as a function of temperature the valence band hole mobility is $2300 \text{ cm}^2/\text{V sec}$ at 4.2°K and $510 \text{ cm}^2/\text{V sec}$ at 90°K . Calculations based on the variation of conductivity with magnetic field give $8800 \text{ cm}^2/\text{V sec}$ and $430 \text{ cm}^2/\text{V sec}$. The variation of the Hall constant and ρ_{xx}/H^2 with field at 4.2°K can be explained by the existence of two types of holes. Acknowledgments are expressed to Professor

D.N. Nasledovyy for his interest in the work.

There are 8 figures and 4 references: 3 Soviet-bloc and the following English language references:

Ref. 4: C. S. Hung, Phys. Rev., 1950, v. 79, 727.

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Thermal dissociation of cadmium and zinc ...B102/B104 S/837/61/049/000/008/011

numerical data on hole concentration and conductivity it can be seen that both σ and n increase after annealing in the low temperature range, but their values slowly decrease when the annealed crystals are held at room temperature for a longer period. These changes are caused by thermal dissociation, i. e. thermal motion raises the number of interstitial atoms (Frenkel' defects) which act as additional "impurities". When the crystal is cooled down these atoms return very slowly to free sites. The dissociation energy was found to be 0.45 ev for CdSb and 0.5 ev for ZnSb, the Frenkel' defect concentration at 20°C was $4.1 \cdot 10^{15}$ and $3.3 \cdot 10^{16} \text{ cm}^{-3}$, respectively. There are 6 figures.

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24-7700 *also 1114, 2801*

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S/181/61/003/009/006/039
B102/B104

AUTHORS: Andronik, I. K., Kot, M. V., and Yemel'yanenko, O. V.

TITLE: Electrical properties of cadmium antimonide single crystals at low temperatures

PERIODICAL: Fizika tverdogo tela, v. 3, no. 9, 1961, 2548 - 2552

TEXT: Pure CdSb single crystals were examined for the temperature dependence of the two components of the conductivity tensor, of the Hall effect, and of the magnetic resistivity between 2.4 and 78°K. The specimens were two blocks of single crystals obtained by the Bridgman method. The crystals had previously been recrystallized three times in H₂ atmosphere. The specimens were 4.4·10 mm large, and the faces were perpendicular to the axes \vec{a} [100], \vec{b} [010], and \vec{c} [001]. V. I. Ded' of the Moldavskiy filial AN SSSR (Moldavian Branch of the AS USSR) checked these data by X-ray structural analysis. One of the specimens was cleft along the \vec{b} axis, and along the \vec{c} axis the other. A measurement of the temperature dependence of the resistivity ($\ln R = f(1/T)$) showed that the

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absolute values of resistivity differ in the axial directions \vec{b} and \vec{c} . The type of temperature dependence is the same. The components R_{321} and R_{231} of the Hall-effect tensor are positive over the whole temperature range (R_{321} : current $\parallel \vec{b}$, $H \parallel \vec{a}$, Hall emf $\parallel \vec{c}$; R_{231} : current $\parallel \vec{c}$, $H \parallel \vec{a}$, Hall emf $\parallel \vec{b}$). The curve $\ln R = f(1/T)$ shows, for the R_{321} component, a maximum at $1/T = 0.25$. While the R-components are independent of \vec{H} at room temperature and liquid-hydrogen temperature, they become smaller at 4.2°K on a rise of \vec{H} . At 90°K, the relative change of resistivity in the magnetic field is linearly dependent on H^2 . At 4.2°K, $\Delta\rho/\rho H^2$ drops with growing H . The anisotropy of the CdSb crystals was also observed in the rotation diagrams $\Delta\rho/\rho = f(\varphi)$ constructed at 4.2°K and $H = 5300$ oe. The most interesting fact revealed by the results is that the curve $R(T)$ passes a maximum at about 4°K, while, at the same temperature, the curve $\rho(T)$ passes from a weakly exponential slope to a steeper one. This behavior reminds of that of the Hall effect in p-type Ge with an acceptor concentration of $\sim 10^{16} \text{ cm}^{-3}$, and may be explained with the hypothesis concerning the impurity conductivity

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